WHAT IS CLAIMED IS:

1. A wireless packet communication system comprising a base station and a plurality of mobile units, wherein

a mobile unit "i" notifies information indicating a transmission rate DRC_i (n) receivable with downlink, information of the transmission rate DRC_i (n) itself or information from which the transmission rate DRC_i (n) can be derived to a base station in every slots, and

the base station computes R_i (n) relevant to all the mobile units "i" in every slots capable of transmission in accordance with the following formula (1) or a formula equivalent to the formula (1),

further, the base station computes an evaluation function F_i (n) in a slot "n" relevant to all the mobile units "i" in accordance with the following formula (2); determines a mobile unit "m" showing maximum value of the evaluation function F_i (n); and

transmits a packet to the mobile unit "m" with a downlink at a transmission rate DRC_m (n) at which the mobile unit "m" is receivable,

$$R_i(n) = \left(1 - \frac{1}{t_c}\right) \times R_i(n-1) + \frac{1}{t_c} \times f\left(r_i(n-1)\right) \quad \cdots (1)$$

wherein r_i (n) represents a transmission rate in a slot "n" relevant to a mobile unit "i"; t_c represents a time constant; and

f ( ) denotes an arbitrary function, provided if f (x) $\neq C \cdot x$.

$$F_i(n) = \frac{DRC_i(n)}{R_i(n)} \quad \cdots (2)$$

2. A wireless packet communication system according to claim 1, wherein, when it is assumed that the transmission rate DRC_i (n) at which the mobile unit "i" is receivable is an always constant value "x", when a target value of a relative throughput of the mobile unit is S (x),

the function f ( ) is the following formula (3) or a formula equivalent to the formula (3):

$$f(x) = \frac{C \cdot x^2}{S(x)} \quad (C \text{ is an arbitrary constant}) \quad \cdots (3)$$

3. A wireless packet communication system according to claim 1, wherein function f ( ) in the foregoing formula (1) is the following formula (4) or a formula equivalent to the formula (4):

$$f(x) = \frac{\sum_{k=1}^{N_2} h_k(x)}{\sum_{j=1}^{N_1} g_j(x)} \quad (g_j(x) \text{ and } h_j(x) \text{ are arbitrary functions.}) \quad \cdots (4)$$

4. A wireless packet communication system according to claim 1, wherein the formula f ( ) in the foregoing formula

(1) is the following formula (5) and is a formula equivalent to the formula (5):

$$f(x) = \frac{\sum_{k=1}^{N_2} c_k \cdot x^{d_k}}{\sum_{j=1}^{N_1} a_j \cdot x^{b_j}} \quad (a_j,\ b_j,\ c_k \text{ and } d_k \text{ are arbitrary constants.}) \qquad \cdots (5)$$

5. A wireless packet communication system according to claim 4, wherein the constant in the foregoing function (5) is $N_1 = 2$, $b_1 = 0$, $b_2 = 1$, $N_2 = 1$, $d_1 = 2$.

6. A wireless packet communication system according to claim 4, wherein the constants in the foregoing function (5) is $N_1 = 1$, $b_1 = 0$, $N_2 = 1$, $d_1 \neq 1$.

7. A wireless packet communication system according to claim 4, wherein the constants in the foregoing function (5) is $N_1 = 2$, $b_1 = 0$, $b_2 = 1$, $N_2 = 1$, $d_1 = 1$.

8. A wireless packet communication system according to claim 1, wherein a plurality of mobile units are classified by a plurality of classes [1] to [M] in advance, and the function f ( ) in the foregoing formula (1) is $f_k(x)$ relevant

to the mobile units of class [k] (k = 1 to M).

9. A wireless packet communication system according to claim 8, wherein the foregoing function $f_k(x)$ (k = 1 to M) is $f_k(x)$ that has a relationship with the following formula (6).

$$\left.\begin{aligned} f_2(x) &= \frac{1}{A_2} \cdot f_1(x) \\ f_3(x) &= \frac{1}{A_3} \cdot f_1(x) \\ &\vdots \\ f_M(x) &= \frac{1}{A_M} \cdot f_1(x) \end{aligned}\right\} \quad (6)$$

10. A wireless packet communication system according to claim 1, wherein formula f ( ) of the foregoing formula (1) relevant to a mobile unit is a function according to a position of the mobile unit; a distance between the mobile unit and the base station; an orientation of the mobile unit viewed from the base station, and a movement speed or an arbitrary combination of these factors.

11. A wireless packet communication system according to claim 1, wherein the function f ( ) in the foregoing formula (1) is a function according to a communication load, a date

and time, a meteorological condition, traffic state or an arbitrary combination of these factors.

12. A wireless packet communication system according to claim 1, wherein, in the case where a plurality of base stations exist, the function f ( ) in the foregoing formula (1) is a function selected for each base station, carrier, or combination of these factors, and each of the base stations computes the foregoing formula (1).

13. A base station in a wireless packet communication system according to claim 1, wherein

the base station computes the foregoing R_i (n) and F_i (n),

determines a mobile unit "m" showing maximum value of F_i (n), and

transmits a packet to the mobile unit "m" at a transmission rate DRC_m (n) at which the mobile unit is receivable.